

that numerous modifications of and departures from the specific embodiments described herein are possible without departing from the inventive concepts set forth in the claims.

5           What is claimed is:

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1 1. A system for identifying updated items of  
2 network-based information to users in a public packet  
3 switched communications network comprising a plurality of  
4 network servers:

5 a master log server; and

6 a plurality of user computers;

7 said master log server being programmed to  
8 periodically receive data from at least some of said  
9 plurality of network servers, said master log server further  
10 being programmed to cause said data to be assembled into one  
11 or more master logs having a plurality of entries, each  
12 entry pertaining to creation of or changing of an item of  
13 network-based information that has occurred within a  
14 predetermined time span, and to cause at least some of said  
15 entries in said one or more master logs to be transmitted to  
16 one of said plurality of user computers;

17 said plurality of user computers being programmed to  
18 receive a user query comprising a request to provide to a  
19 user at least a subset of said entries in said one or more  
20 master logs wherein each of said entries in said subset  
21 matches a search pattern contained in said user query, said  
22 search pattern comprising an identification of a time  
23 period, and to cause said user query to be executed by  
24 providing to said user, from each of said one or more master  
25 logs into which data has been assembled within said time  
26 period, said subset of said entries.

1 2. A system in accordance with claim 1, wherein  
2 said data received by said master log server from said  
3 network servers comprises logs having entries pertaining to  
4 creation of or changing of items of network-based  
5 information.

1           3. A system in accordance with claim 1, wherein  
2 said master log server is programmed to cause a first one of  
3 said master logs to be merged into a second one of said  
4 master logs on a periodic basis, and to cause said first one  
5 of said master logs to be cleared on said periodic basis.

1           4. A system in accordance with claim 3, wherein  
2 said master log server is programmed to cause said second  
3 one of said master logs to be merged into a third one of  
4 said master logs on a periodic basis and to cause said  
5 second one of said master logs to be cleared on said  
6 periodic basis.

1           5. A system in accordance with claim 1, wherein  
2 said items of network-based information comprise pages of  
3 information.

1           6. A system in accordance with claim 1, wherein:  
2 each of said user computers is programmed to  
3 transmit said user query to said master log server; and  
4 said master log server is programmed to receive said  
5 user query from one of said user computers and to execute  
6 said user query by transmitting said subset of said entries  
7 to said one of said user computers.

1           7. A system in accordance with claim 1, wherein:  
2 said master log server is programmed to transmit  
3 entries in said master logs that occurred during said time  
4 period to said one of said user computers; and  
5 each of said user computers is programmed to execute  
6 said user query internally.

1           8. A system in accordance with claim 1, wherein  
2 entries pertaining to creation of or changing of items of  
3 network-based information comprise identifications of said  
4 items of network-based information.

1           9. A system in accordance with claim 1, wherein  
2 said entries pertaining to creation of or changing of items  
3 of network-based information comprise identifications of  
4 servers that maintain said items of network-based  
5 information.

1           10. A system in accordance with claim 1, wherein  
2 said master log server is programmed to cause said entries  
3 that said master log server causes to be transmitted to said  
4 one of said plurality of user computers to be compressed  
5 prior to transmission to said one of said plurality of user  
6 computers by causing information to be deleted from said  
7 entries.

1           11. A system in accordance with claim 1, wherein  
2 said user query is a standing query that is executed on a  
3 periodic basis by providing to said user, from one of said  
4 master logs that said master log server causes to be cleared  
5 on said periodic basis, all entries that match said search  
6 pattern contained in said standing query, immediately before  
7 said master log server causes said one of said master logs  
8 to be cleared.

1           12. A system in accordance with claim 1, wherein:  
2 each of said entries comprises at least one field;  
3 and

4        said master log server is programmed to cause at  
5        least one of said master logs to be indexed by said field,  
6        so as to enable fast searches.

1        13. A system in accordance with claim 12, wherein:  
2        each of said entries comprises a plurality of  
3        fields; and

4        said master log server is programmed to cause at  
5        least one of said master logs to be indexed by each of said  
6        fields.

1        14. A system in accordance with claim 1, wherein:  
2        said system further comprises a plurality of slave  
3        servers;

4        said master log server is programmed to periodically  
5        transmit at least one of said master logs to each of said  
6        slave servers; and

7        each of said slave servers is programmed to transmit  
8        at least some of said entries in said master log to one of  
9        said plurality of user computers.

1        15. A system in accordance with claim 14, wherein:  
2        each of said user computers is programmed to  
3        transmit said user query to one of said slave servers; and

4        each of said slave servers is programmed to receive  
5        said user query from one of said user computers and to  
6        execute said user query by transmitting said subset of said  
7        entries to said one of said user computers.

1        16. A system in accordance with claim 14, wherein  
2        said master log server is programmed to cause a first one of  
3        said master logs to be merged into a second one of said  
4        master logs on a periodic basis and to cause said first

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5 master log to be cleared on said periodic basis by  
6 periodically transmitting said first master log to each of  
7 said slave servers, each of said slave servers being  
8 programmed to merge said first master log into said second  
9 master log on said periodic basis, and to clear said first  
10 of said master logs on said periodic basis.

1 17. A system in accordance with claim 14, wherein:  
2 each of said entries comprises at least one field;  
3 and

4 each of said slave servers is programmed to cause  
5 said one or more master logs to be indexed by said field, so  
6 as to enable fast searches.

1 18. A method for identifying updated items of  
2 network-based information to users in a public packet  
3 switched communications network comprising a plurality of  
4 network servers, a master log server, and a plurality of  
5 user computers, comprising the steps of:

6 periodically receiving, at said master log server,  
7 data from at least some of said plurality of network  
8 servers;

9 assembling said data into one or more master logs  
10 having a plurality of entries, each of said master logs  
11 comprising at least one entry, each entry pertaining to  
12 creation of or changing of an item of network-based  
13 information that has occurred within a predetermined time  
14 span;

15 causing at least some of said entries in said one or  
16 more master logs to be transmitted to one of said plurality  
17 of user computers;

18 receiving user queries at each of said user  
19 computers, each of said user queries comprising a request to

20 provide to a user at least a subset of said entries in said  
21 one or more master logs wherein each of said entries in said  
22 subset matches a search pattern contained in said user  
23 query, said search pattern comprising an identification of a  
24 time period; and

25 causing said user queries to be executed by  
26 providing to said user, from each of said one or more master  
27 logs into which data has been assembled within said time  
28 period, said subset of said entries.

1 19. A system for implementing security protocols in  
2 a public packet switched communications network comprising a  
3 plurality of network servers programmed to receive requests  
4 from users for items of network-based information and to  
5 transmit said items of network-based information to said  
6 users in response to said requests, comprising:

7 a network tool, implemented on a computer,  
8 programmed to receive a first item of network-based  
9 information comprising a link in a protocol compatible with  
10 said network tool, and, in response to user input selecting  
11 said link, to create a request for said second item of  
12 network-based information, said request comprising said  
13 link; and

14 a proxy server, implemented on a computer,  
15 programmed to receive said first item of network-based  
16 information from one of said network servers, wherein said  
17 link is in a protocol incompatible with said network tool,  
18 to translate said link into said protocol compatible with  
19 said network tool, to transmit to said network tool said  
20 first item of network-based information, with said link  
21 being translated into said protocol compatible with said  
22 network tool, to receive said request for said second item  
23 of network-based information from said network tool, to

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24 retrieve said link from said request, to back-translate said  
25 link into said protocol incompatible with said network tool,  
26 and to request said second item of network-based information  
27 from one of said network servers.

1           20. A system in accordance with claim 19, wherein  
2 said proxy server is programmed to execute said protocol  
3 incompatible with said network tool in a manner that  
4 authenticates an identity of said user.

1           21. A system in accordance with claim 19, wherein:  
2           said proxy server is programmed to encode within  
3 said link data identifying said protocol incompatible with  
4 said network tool, prior to transmitting to said network  
5 tool said first item of network-based information comprising  
6 said link; and  
7           said proxy server is programmed to decode said data  
8 to determine how to back-translate said link.

1           22. A system in accordance with claim 19, wherein  
2 said proxy server is programmed to incorporate into said  
3 link a flag identifying said link as a translated link,  
4 prior to transmitting to said network tool said first item  
5 of network-based information comprising said link.

1           23. A system in accordance with claim 19, wherein  
2 said computer on which said proxy server is implemented is  
3 said computer on which said network tool is implemented.

1           24. A system in accordance with claim 19, wherein  
2 said link comprises a universal resource locator.



1           25. A system in accordance with claim 19, wherein  
2 said network tool comprises a browser programmed to cause  
3 items of network-based information to be displayed to a  
4 user.

1           26. A system in accordance with claim 19, wherein  
2 said protocol compatible with said network tool is HTTP.

1           27. A system in accordance with claim 19, wherein  
2 said protocol incompatible with said network tool is SSL.

1           28. A system in accordance with claim 19, wherein  
2 said protocol incompatible with said network tool is SHTTP.

1           29. A system in accordance with claim 19, wherein  
2 said items of network-based information comprise pages of  
3 information.

1           30. A method of implementing security protocols in  
2 a public packet switched communications network comprising a  
3 plurality of network servers programmed to receive requests  
4 from users for items of network-based information and to  
5 transmit said items of network-based information to said  
6 users in response to said requests, a network tool  
7 implemented on a computer, and a proxy server implemented on  
8 a computer, comprising the steps of:

9           at said proxy server, receiving a first item of  
10 network-based information from one of said network servers  
11 comprising a link in a protocol incompatible with said  
12 network tool, translating said link into a protocol  
13 compatible with said network tool, and transmitting to said  
14 network tool said first item of network-based information,

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15 with said link being translated into said protocol  
16 compatible with said network tool;

17 at said network tool, receiving said first item of  
18 network-based information, and, in response to user input  
19 selecting said link, creating a request for said second item  
20 of network-based information, said request comprising said  
21 link;

22 at said proxy server, receiving said request for  
23 said second item of network-based information from said  
24 network tool, retrieving said link from said request, back-  
25 translating said link into said protocol incompatible with  
26 said network tool, and requesting said second item of  
27 network-based information from said one of said network  
28 servers.

1 31. A system for managing authenticating  
2 credentials of a user of a public packet switched  
3 communications network comprising a plurality of network  
4 servers programmed to receive requests from users for items  
5 of network-based information and to transmit said items of  
6 network-based information to said users in response to said  
7 requests, comprising:

8 a network tool, implemented on a computer,  
9 programmed to create a request for an item of network-based  
10 information from one of said network servers in response to  
11 input from a user, and to receive said item of network-based  
12 information in response to said request;

13 a proxy server, implemented on a computer,  
14 programmed to maintain a table of authenticating credentials  
15 for each of said plurality of network servers, to receive  
16 said request from said network tool, to forward said request  
17 to said one of said network servers, to receive a request  
18 for authentication from said one of said network servers, to

19 retrieve from said table authenticating credentials for said  
20 one of said network servers, to transmit said authenticating  
21 credentials to said network server, to receive said item of  
22 network-based information from said network server, and to  
23 forward said item of network-based information to said  
24 network tool.

1 32. A system in accordance with claim 31, wherein  
2 said proxy server is further programmed to request a  
3 security message from said user in order to protect said  
4 table of authenticating credentials.

1 33. A system in accordance with claim 31, wherein  
2 said computer on which said proxy server is implemented is  
3 said computer on which said network tool is implemented.

1 34. A system in accordance with claim 31, wherein  
2 said network tool comprises a browser programmed to cause  
3 items of network-based information to be displayed to a  
4 user.

1 35. A system in accordance with claim 31, wherein  
2 said items of network-based information comprise pages of  
3 information.

1 36. A method of managing authenticating credentials  
2 of a user of a public packet switched communications network  
3 comprising a plurality of network servers programmed to  
4 receive requests from users for items of network-based  
5 information and to transmit said items of network-based  
6 information to said users in response to said requests, a  
7 network tool implemented on a computer, and a proxy server  
8 implemented on a computer, comprising the steps of:

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9 at said network tool, creating a request for an item  
10 of network-based information from one of said network  
11 servers in response to input from a user, and receiving said  
12 item of network-based information in response to said  
13 request; and

14 at said proxy server, maintaining a table of  
15 authenticating credentials for each of said plurality of  
16 network servers, receiving said request from said network  
17 tool, forwarding said request to said one of said network  
18 servers, receiving a request for authentication from said  
19 one of said network servers, retrieving from said table  
20 authenticating credentials for said one of said network  
21 servers, transmitting said authenticating credentials to  
22 said network server, receiving said item of network-based  
23 information from said network server, and forwarding said  
24 item of network-based information to said network tool.

1 37. A system for inducing advertisers to target  
2 advertisements to consumers in a public packet switched  
3 communications network comprising a plurality of network  
4 advertiser servers programmed to transmit advertisements,  
5 said system comprising:

6 an advertising broker server; and  
7 a plurality of user computers;

8 said advertising broker server being programmed to  
9 receive advertisements from each of said network advertiser  
10 servers, each of said advertisements being targeted toward  
11 at least one of a plurality of users served by said  
12 advertising broker server and being accompanied by an offer  
13 having monetary value for acceptance of said advertisement,  
14 and to transmit at least one of said advertisements to one  
15 of said user computers operated by a user targeted by said  
16 advertisement;

17 each one of said plurality of user computers being  
18 programmed to receive advertisements from said advertising  
19 broker server and, whenever a user of said one of said user  
20 computers has read an advertisement, to send a message to  
21 said advertising broker server indicating that said user has  
22 read said advertisement;

23 said advertising broker server being programmed to  
24 receive said message indicating that said user has read said  
25 advertisement, and, in response thereto, to cause said offer  
26 having monetary value to be executed.

1 38. A system in accordance with claim 37, wherein  
2 said advertising broker server is programmed to create a  
3 personal billboard page of information for each one of said  
4 plurality of users served by said advertising broker server,  
5 said billboard page of information comprising advertisements  
6 transmitted by said advertising broker server to a user  
7 computer operated by said one of said plurality of users.

1 39. A system in accordance with claim 37, wherein:  
2 said offer having monetary value comprises a bid for  
3 transmission of an advertisement to a user computer operated  
4 by a user targeted by said advertisement; and  
5 said advertising broker server is programmed to  
6 transmit said advertisement to said user computer operated  
7 by said user targeted by said advertisement only if said bid  
8 is acceptable to said advertising broker server.

1 40. A system in accordance with claim 37, wherein  
2 said offer comprising monetary value comprises an offer to  
3 transfer monetary value to said advertising broker server.

1 41. A system in accordance with claim 37, wherein  
2 said offer comprising monetary value comprises an offer to  
3 transfer monetary value to said user targeted by said  
4 advertisement.

1 42. A system in accordance with claim 37, wherein:  
2 each one of said user computers is programmed to  
3 create a record of advertisements read by a user of said one  
4 of said user computers and to transmit said record to said  
5 advertising broker server; and  
6 said advertising broker server is programmed to  
7 transmit to said network servers information pertaining to  
8 said record of advertisements read by said user.

1 43. A system in accordance with claim 42, wherein  
2 said advertising broker server is programmed to transmit to  
3 said network advertiser servers said information pertaining  
4 to said record of advertisements read by said user in a  
5 manner that preserves anonymity of said user.

1 44. A system in accordance with claim 37, wherein  
2 at least one of said user computers comprises a proxy server  
3 programmed to receive advertisements from said advertising  
4 broker server and, whenever a user of said one of said user  
5 computers has read an advertisement, to send a message to  
6 said advertising broker server indicating that said user has  
7 read said advertisement.

1 45. A system in accordance with claim 37, wherein  
2 each one of said plurality of user computers is programmed  
3 to send said message to said advertising broker server  
4 indicating that a user has read an advertisement only if

5 said user computer verifies against computer-simulated  
6 reading of said advertisement.

1 46. A system in accordance with claim 37, wherein:  
2 said system further comprises a payment computer  
3 programmed to receive payment requests, to authenticate said  
4 payment requests, and to cause payment to be executed upon  
5 authentication of each of said payment requests; and  
6 said advertising broker server is programmed to  
7 cause said offer having monetary value to be executed by  
8 transmitting a payment request to said payment computer.

1 47. A system in accordance with claim 37, wherein  
2 said advertising broker server is programmed to provide to  
3 said network advertiser servers information with respect to  
4 each of said users from which said network advertiser  
5 servers can deduce which advertisements are likely to be of  
6 interest to each of said users.

1 48. A system in accordance with claim 47, wherein:  
2 said advertising broker is programmed to provide  
3 said information to said network advertiser servers  
4 accompanied by customer profile numbers corresponding to  
5 actual users whose identities are not revealed by said  
6 advertising broker server; and  
7 at least some of said advertisements received by  
8 said advertising broker server from said network advertiser  
9 servers are targeted toward one of said plurality of  
10 customer profile numbers.

1 49. A system in accordance with claim 37, wherein  
2 said offer having monetary value comprises an offer of  
3 money.

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1           50. A system in accordance with claim 37, wherein  
2 said offer having monetary value comprises an offer of a  
3 coupon for a discount on a purchase.

1           51. A method of inducing advertisers to target  
2 advertisements to consumers in a public packet switched  
3 communications network comprising a plurality of network  
4 advertiser servers programmed to transmit advertisements, an  
5 advertising broker server, and a plurality of user  
6 computers, comprising the steps of:

7           at said advertising broker server, receiving  
8 advertisements from each of said network advertiser servers,  
9 each of said advertisements being targeted toward at least  
10 one of a plurality of users served by said advertising  
11 broker server and being accompanied by an offer having  
12 monetary value for acceptance of said advertisement, and  
13 transmitting at least one of said advertisements to one of  
14 said user computers operated by a user targeted by said  
15 advertisement;

16           at each one of said plurality of user computers,  
17 receiving advertisements from said advertising broker server  
18 and, whenever a user of said one of said user computers has  
19 read an advertisement, sending a message to said advertising  
20 broker server indicating that said user has read said  
21 advertisement; and

22           at said advertising broker server, receiving said  
23 message indicating that said user has read said  
24 advertisement, and, in response thereto, causing said offer  
25 having monetary value to be executed.

1           52. A system for extracting data from sources of  
2 network-based information in a communications network  
3 comprising a plurality of network servers programmed to



4 transmit network-based information over said network,  
5 comprising:

6 a script program, implemented on a computer in said  
7 communications network, structured to extract data from  
8 network-based information provided by one of said network  
9 servers; and

10 an object embedding program, implemented on a  
11 computer in said communications network, comprising a link  
12 to said network-based information provided by said one of  
13 said network servers and a link from which said object  
14 embedding program can locate said script program, said  
15 object embedding program being structured to apply said  
16 script program to said network-based information so as to  
17 cause said data to be extracted from said network-based  
18 information, and to embed said data within a compound  
19 document implemented on a computer in said communications  
20 network.

1 53. A system in accordance with claim 52, wherein  
2 said link from which said object embedding program can  
3 locate said script program comprises a direct link to said  
4 script program.

1 54. A system in accordance with claim 52, wherein  
2 said link from which said object embedding program can  
3 locate said script program is said link to said network-  
4 based information, and wherein said network-based  
5 information in turn comprises a link to said script program.

1 55. A system in accordance with claim 52, wherein  
2 said link from which said object embedding program can  
3 locate said script program comprises said link to said  
4 network-based information, and wherein said network-based

5 information comprises an identification of a table  
6 comprising a link to said script program.

1 56. A system in accordance with claim 52, wherein  
2 said link comprises a universal resource locator.

1 57. A system in accordance with claim 52, wherein  
2 said computer on which said object embedding program is  
3 implemented comprises said computer on which said compound  
4 document is implemented.

1 58. A system in accordance with claim 52, wherein  
2 said network-based information is a page of information.

1 59. A method of extracting data from network-based  
2 information in a communications network comprising a  
3 plurality of network servers programmed to transmit network-  
4 based information over said network, comprising the steps  
5 of:

6 executing an object embedding program implemented on  
7 a computer in said communications network to locate a script  
8 program from a link in said object embedding program, to  
9 apply said script program to network-based information,  
10 provided by said one of said network servers, to which said  
11 object embedding program is linked by a link in said object  
12 embedding program, and to apply said script program to said  
13 network-based information;

14 executing said script program, implemented on a  
15 computer in said communications network, to extract data  
16 from said network-based information provided by said one of  
17 said network servers; and

18 continuing to execute said object embedding program  
19 to embed said data within a compound document implemented on  
20 a computer in said communications network.

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